IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/603,495	Confirmation No. :	3535
Applicant	:	Creamer, *et al.*		
Filed	:	June 25, 2003		
TC/A.U.	:	2192		
Examiner	:	Neway, Samuel G.		
Docket No.	:	BOC9-2002-0070 (367)		

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Thomas E. Creamer, a citizen of the United States, residing in Boca Raton, Florida, hereby declare and state as follows:

1. I was employed by International Business Machines Corporation (IBM) of Armonk, New York at the time the above-identified application was conceived. I make this declaration in support the above-identified application.

2. IBM has invested substantial time and effort into the research, development, and marketing of their products, and in an effort to protect its rights in all new inventions, IBM requests that all employees prepare and submit confidential Invention Disclosure Forms upon conception by the inventor(s).

3. As a named co-inventor for this invention, I and my co-inventors prepared and submitted the attached Invention Disclosure No. BOC8-2002-0056 (hereinafter "Invention Disclosure") pursuant to IBM guidelines.

4. The Invention Disclosure was originally submitted for consideration to an IBM Attorney/Patent Professional for preparation of a patent application on April 29, 2002, and was insubstantially modified on August 22, 2002. The content of the Invention Disclosure has not been subsequently modified. The Invention Disclosure represents a fully conceived and workable invention as written. I reviewed the claims of the above-mentioned patent application prior to submission of the application to assure the claimed invention was fully supported by the

Invention Disclosure in light of the Invention Disclosure and art known at the time of the disclosure.

5. I diligently worked with outside counsel to prepare and file the above-mentioned patent application.

6. I make this Declaration to establish that my co-inventors and I conceived of the present invention at least as early as April 29, 2002, and exercised due diligence from that date to the date of filing for the above-identified patent application.

7. I further declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that such willful, false statements may jeopardize the validity of the above-identified patent application or any patent issuing thereon.

Thomas E Creamer

THOMAS E. CREAMER

Date: 5-28/2007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/603,495	Confirmation No.	:	3535
Applicant	:	Creamer, *et al.*			
Filed	:	June 25, 2003			
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DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Peeyush Jaiswal, a citizen of the United States, residing in Boca Raton, Florida, hereby declare and state as follows:

1. I was employed by International Business Machines Corporation (IBM) of Armonk, New York at the time the above-identified application was conceived. I make this declaration in support the above-identified application.

2. IBM has invested substantial time and effort into the research, development, and marketing of their products, and in an effort to protect its rights in all new inventions, IBM requests that all employees prepare and submit confidential Invention Disclosure Forms upon conception by the inventor(s).

3. As a named co-inventor for this invention, I and my co-inventors prepared and submitted the attached Invention Disclosure No. BOC8-2002-0056 (hereinafter "Invention Disclosure") pursuant to IBM guidelines.

4. The Invention Disclosure was originally submitted for consideration to an IBM Attorney/Patent Professional for preparation of a patent application on April 29, 2002, and was insubstantially modified on August 22, 2002. The content of the Invention Disclosure has not been subsequently modified. The Invention Disclosure represents a fully conceived and workable invention as written. I reviewed the claims of the above-mentioned patent application prior to submission of the application to assure the claimed invention was fully supported by the

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5. I diligently worked with outside counsel to prepare and file the above-mentioned patent application.

6. I make this Declaration to establish that my co-inventors and I conceived of the present invention at least as early as April 29, 2002, and exercised due diligence from that date to the date of filing for the above-identified patent application.

7. I further declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that such willful, false statements may jeopardize the validity of the above-identified patent application or any patent issuing thereon.

Peeyush Jaiswal

PEEYUSH JAISWAL

Date: 5/28/07

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/603,495	Confirmation No.	:	3535
Applicant	:	Creamer, *et al.*			
Filed	:	June 25, 2003			
TC/A.U.	:	2192			
Examiner	:	Neway, Samuel G.			
Docket No.	:	BOC9-2002-0070 (367)			

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Christopher J. Pavlovski, a citizen of Australia, hereby declare and state as follows:

1. I was employed by International Business Machines Corporation (IBM) of Armonk, New York at the time the above-identified application was conceived. I make this declaration in support the above-identified application.

2. IBM has invested substantial time and effort into the research, development, and marketing of their products, and in an effort to protect its rights in all new inventions, IBM requests that all employees prepare and submit confidential Invention Disclosure Forms upon conception by the inventor(s).

3. As a named co-inventor for this invention, I and my co-inventors prepared and submitted the attached Invention Disclosure No. BOC8-2002-0056 (hereinafter "Invention Disclosure") pursuant to IBM guidelines.

4. The Invention Disclosure was originally submitted for consideration to an IBM Attorney/Patent Professional for preparation of a patent application on April 29, 2002, and was insubstantially modified on August 22, 2002. The content of the Invention Disclosure has not been subsequently modified. The Invention Disclosure represents a fully conceived and workable invention as written. I reviewed the claims of the above-mentioned patent application prior to submission of the application to assure the claimed invention was fully supported by the

Invention Disclosure in light of the Invention Disclosure and art known at the time of the disclosure.

5. I diligently worked with outside counsel to prepare and file the above-mentioned patent application.

6. I make this Declaration to establish that my co-inventors and I conceived of the present invention at least as early as April 29, 2002, and exercised due diligence from that date to the date of filing for the above-identified patent application.

7. I further declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that such willful, false statements may jeopardize the validity of the above-identified patent application or any patent issuing thereon.

CHRISTOPHER J. PAVLOVSKI

Date: Monday, 28th May 2007

EXHIBIT "A"

6169-367

Disclosure BOC8-2002-0056

Prepared for and/or by an IBM Attorney - IBM Confidential

Created By Tom Creamer On 04/29/2002 03:52:29 PM EDT
Last Modified By Elaine Venturelli On 08/22/2002 11:16:42 AM MDT

Required fields are marked with the asterisk (*) and must be filled in to complete the form .

***Title of disclosure (in English)**
Voice-to-Text Reduction for Real Time IM/Chat/SMS

Summary

Status		Search Results Received
Final Deadline		
Final Deadline Reason		
*Processing Location		[redacted]
*Functional Area	select	[redacted]
Attorney/Patent Professional		[redacted]
IDT Team	select	[redacted]
Submitted Date		04/29/2002 04:15:08 PM EDT
*Owning Division	select	[redacted]
Incentive Program		
Lab		
*Technology Code		
PVL Score		[redacted]

Inventors with a Blue Pages entry

Inventors: Tom Creamer [redacted] IBM, Christopher Pavlovski [redacted] IBM [redacted], Peeyush Jaiswal [redacted] IBM

Inventor Name	Inventor Serial	Div/Dept	Inventor Phone	Manager Name
Creamer, Thomas E.	[redacted]			
> Pavlovski, Christopher J.				
Jaiswal, Peeyush				

> denotes primary contact

Inventors without a Blue Pages entry

[redacted]

[redacted]

***Main Idea**

To view the main idea for this disclosure, click on this doclink ---> **(If you are prompted to enter a server name, please enter D01DB016)**

***Critical Questions (Questions 1-9 must be answered in English)**

***Question 1**

[redacted] Please format the date as MM/DD/YYYY.

(Workable means be when you know that your design will solve the problem)

***Question 2**

[redacted] ○ Yes ● No

If yes, Enter the name of each publication or patent and the date published below:

Publication/Patent:

Date Published or Issued:

[redacted] ○ Yes ● No

If yes, Enter the name of each publication or patent and the date published below:

Publication/Patent:

Date Published or Issued:

***Question 3**

[redacted] ○ Yes

[redacted] ○ Yes ● No

If Yes, identify the product if known and indicate the date of planned date of sale, announcements, or proposal and to whom the sale, announcement or proposal has been or will be made.

Product:

Version/Release:

Code Name:

Date:

To Whom:

If more than one, use cut and paste and append as necessary in the field provided.

***Question 4**

[redacted] ○ Yes ● No

If yes, give a date. Please format the date as MM/DD/YYYY.

***Question 5**

Have you ever discussed your invention with others not employed at IBM? ○ Yes ● No

If yes, identify individuals and date discussed. If unsure, are any of the following information the names of the individuals, the employer, date discussed, under CDA, and CDA #

***Question 6**

Was the invention, in any way, started or developed under a government contract or project? ○ Yes ● No ○ Not sure

If Yes, enter the contract number

***Question 7**

Was the invention made in the course of any alliance, joint development or other contract activities? ○ Yes ● No ○ Not Sure

If Yes, enter the following:

Name of Alliance, Contractor or Joint Developer

Contract ID number

Relationship contact name

Relationship contact E-mail

Relationship contact phone

***Question 8**

Have you, or any of the other inventors, submitted this same invention disclosure or similar invention disclosure previously? ○ Yes ● No

If Yes, please provide disclosure number below:

***Question 9**

Are you, or any of the other inventors, aware of any related inventions disclosures submitted by anyone in IBM previously? ○ Yes ● No

If Yes, please provide the docket or disclosure number or any other identifying information below:

Question 10

What type of companies do you expect to compete with inventions of this type? *Check all that apply.*

[redacted]
Manufacturers of enterprise servers
Manufacturers of entry servers
Manufacturers of workstations
Manufacturers of PC's
Non-computer manufacturers
Developers of operating systems
Developers of networking software
Developers of application software
Integrated solution providers
Service providers
Client (Please specify below)
Manufacturers of wireless handheld devices, such as PDAs, Mobile phones, etc.

Question 11

If the invention relates to a product or service that is outside the scope of your business unit, please recommend IBM business unit(s), IBM location(s) or individual(s) within IBM that you think would provide a good evaluation of your invention:

Peeyush Jaiswal/RVC Voice Systems

Patent Value Tool (Optional - this may be used by the inventor and attorney to assist with the evalu

(The) Patent Value tool can be used by the inventor(s) to determine the potential licensing value of your invention.)

Market

***Question 1:** What is the anticipated annual market size (in dollars) that will be captured by your invention?

Reason(s) for above Answer:

Claims

***Question 1:** How new is the technical field?

Reason(s) for above Answer:

***Question 2:** How central is the invention to the product(s) which might be expected to contain the invention?

Reason(s) for above Answer:

***Question 3:** What is the scope of the claim?

Reason(s) for above Answer:

Portfolio Need

***Question 1:** What are the portfolio needs in the area of your invention?

Reason(s) for above Answer:

Exploitation & Enforcement

***Question 1:** How easily can the use of the invention by a competitor be detected?

Reason(s) for above Answer:

***Question 2:** How easily can the use of the invention be avoided by a competitor?

Reason(s) for above Answer:

Business Value

***Question 1:** What percentage of the companies producing products in the field of this invention might use this invention?

Reason(s) for above Answer:

***Question 2:** What is the value of this patent to current or anticipated Alliance Activity between IBM and other companies?

Reason(s) for above Answer:

***Question 3:** What is the value of this patent to current or anticipated Technology Transfer Activity between IBM and other companies?

Reason(s) for above Answer:

***Question 4:** Does it result in prestige to IBM?

Reason(s) for above Answer:

Evaluation

This evaluation was entered by Elaine Venturelli/Boca Raton/IBM on 07/29/2002

Team Evaluation

Who is the final evaluation of this disclosure? Search

Date rated: 07/26/2002

Evaluation Comments:

Final Evaluation History	Who made the final evaluation	Final evaluation date
	Elaine Venturelli/Boca Raton/IBM	07/26/2002

Search Information

Date sent: 07/29/2002 | Target completion date: 08/29/2002 | Search Results Received date: 08/29/2002

Who was the search sent to (this area is to designate a Local Searcher name or WAIPI or WAIP):

Search Type: ☐ Patentability ☐ Clearance ☐ Validity ☐ State of Art

Fields to be searched: Please see disclosure for details

Search Office Information

Target completion date: 08/29/2002 | ☐ Search has been delayed | Shortened due date: 08/29/2002

Search Conducted By: Nguyen

Comments:

Post Disclosure Text & Drawings

To add additional information related to this disclosure once it has been submitted, click the action button below and a new document will be opened for you to enter the new information. To view existing post disclosure information, double-click on the item in the list below (if there has been additional information entered), and the document will open for you to view.

Date entered	Post disclosure information (comments and drawings)
11/12/2002	Comments by Tom Creamer,Comments by Peeyush Jaiswal

Form Revised 09/01/02)

1 Voice to Text Reduction for Real Time Chat

The nature of the proposed invention is a new technique for providing a real-time chat channel. The proposed invention is to deploy Speech to Text transcription and Text to Speech synthesis for real-time exchange of text messages (i.e. online chat). This solves several problems, including improvements in voice transmission efficiency (in the order of 90% improvement) and eliminates the use of keypad and keyboard devices for on-line chat. The ability to conduct on-line chat session over mobile phone is currently not practical. As such, the proposed invention enables two parties to conduct an on-line chat session on mobile phones by overcoming the limitations of these devices. This has many potential applications that extend beyond mobile phones, and is particularly suited to several environments that exhibit the following restrictions:

1. Low bandwidth environments.
2. Devices that have poor input capabilities.
3. Devices that have poor output capabilities.

As suggested, the most obvious application of the invention is the use of real-time chat over mobile phones. Present day mobile device have to deal with all three problems listed above (low bandwidth network, poor text input, and poor visual display). More specifically, the proposed invention can be used in several ways to overcome these limitations, these are:

1. Voice Input-Output with text compression, and
2. Voice Input transcription for real time chat.

In addition to the above two proposed uses, the invention can be used to function as a language translation function between two parties, hence additional applications are:

3. Voice Input-Output with Language translation.
4. Voice Input transcription with language translation.

The proposed invention goes well beyond previous inventions that propose the use of speech transcription technologies as a command interface only. Furthermore, the use of present day speech to text (transcription) and text to speech (using an appropriate synthesis algorithm) technologies may applied. This means that the proposed invention is technically feasible.

1.1 Voice to Text Compression

Both techniques extend the Voice to Text Compression benefit outlined, hence reducing the bandwidth requirements significantly. The voice compression benefit is now described. The compression benefit is achieved when comparised to the conventional transmission of a voice signals that are compressed using techniques such as Codec voice encoding. The proposed invention has the sending party voice transmission converted to text, (this may be achieved using present day transcription techniques). The text (which may be further compressed) is then transmitted to the receiver, and at the receiving end the text stream is then converted to speech. To reconstruct the original voice of the sending party a previously recorded voice signature is applied during the text-to-speech synthesis conversion at the reciever. This process is able to achieve over a 90% compression improvement over the conventional Codec approaches. The following diagram, Figure 1, illustrates the notion.

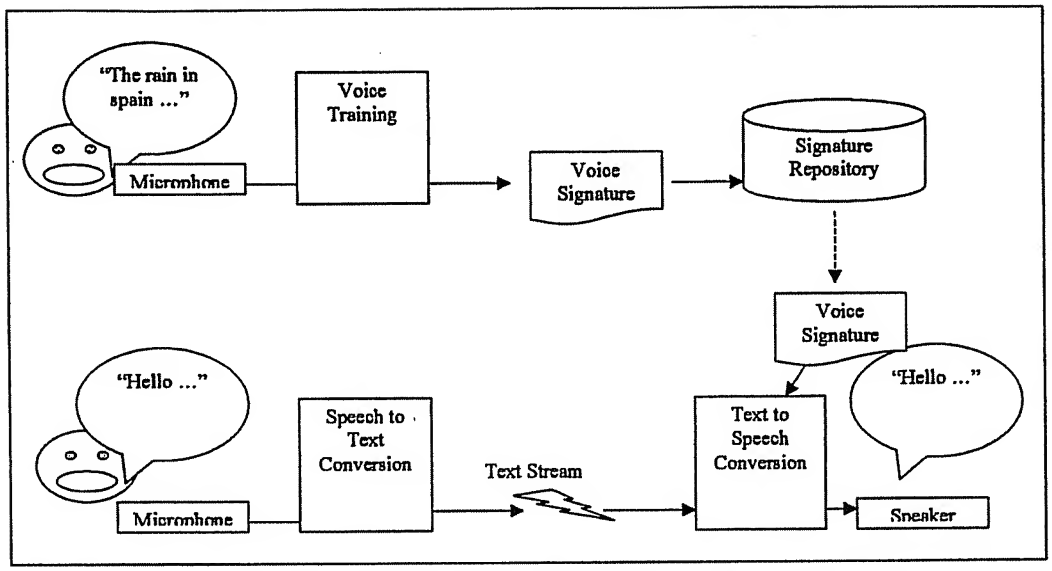


Figure 1. Voice Signature Capture and Voice to Text Compression

It has been suggested that the error rate of entering text is in the order of 10-20% [ref]. Using present day technologies (such as Via voice, and text to speech synthesis techniques) a similar error rate may be achieved, without the need for the user to enter text.

1.2 Voice Input-Output with text compression

The proposed invention may be fundamentally extended in two ways. The first approach is described in this section, where two parties are able to conduct a voice enhanced on-line chat session. The following diagram illustrates how the sending party's voice transmission is converted into a text stream (using transcription technologies). The text stream is then forwarded onto the receiving party. At the receiving end, the text stream is converted back to a voice stream using the previously recorded voice signature of the sending party (see Figure 1). As such the reconstructed signal is formed in the voice print of the sending party.

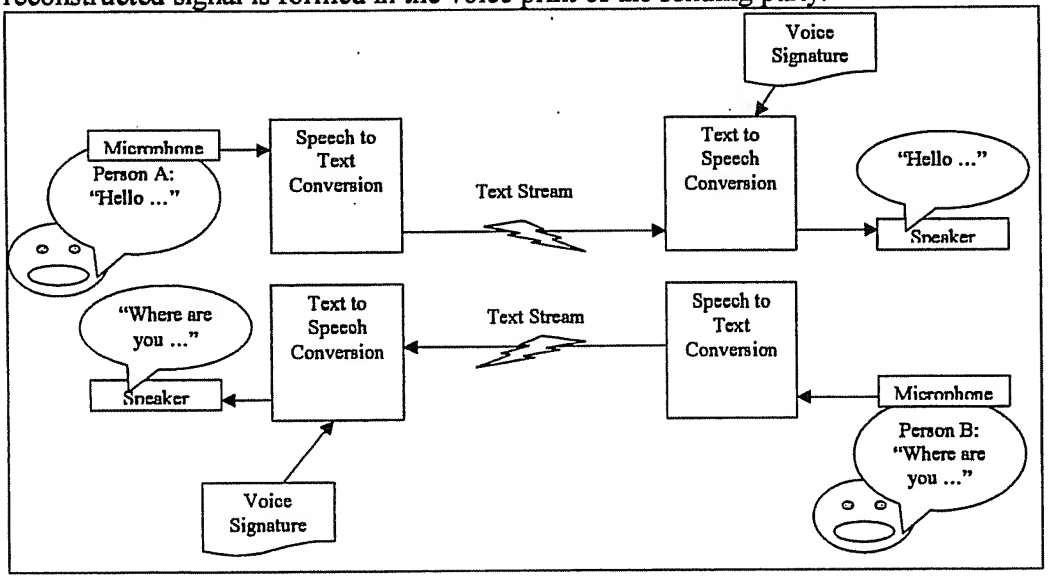


Figure 2. Voice to Text Compression

Several benefits are apparent with approach including the compression of the voice stream to a text stream, requiring a lower transmission bandwidth – hence lower cost for the delivery, overcoming device input capability, and overcoming device output capabilities. Shown at Figure 2 is the full duplex operation of the proposed invention.

1.3 Voice Input transcription for real time chat

An alternative extension of the proposed invention is the use of voice transcription for entering text into an online chat session, most notably over a mobile phone. The following diagram illustrates the operation, see Figure 3.

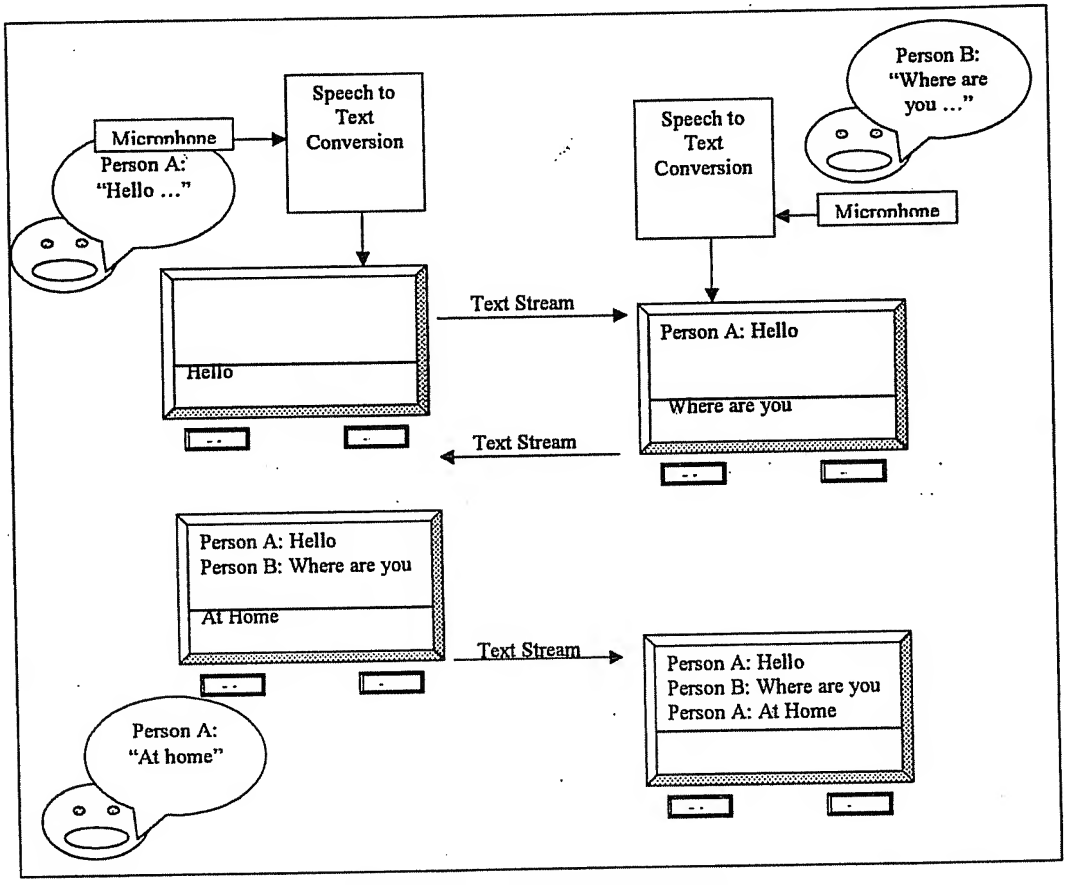


Figure 3. Voice to Text Conversion

Under this approach the senders voice is converted into a text stream, overcoming the device input restriction of small devices. The text stream is then forwarded onto the receiver as in the normal on-line chat scenario. In reply, the receiver would also have their voice transmission converted into the reply text.

1.4 Voice Input-Output with Language translation

The final proposed use of the invention is to extend the solution to provide real-time language translation. Real time language translation is presently an unsolved problem and is solved by the proposed invention. The basic idea is to extend the proposed use described in section 1.2, by adding a language translation engine to the text stream prior to the text to speech voice conversion. The resultant effect is for the sending party to be heard in the native language of the receiving person. This heard in the

sending parties voice, using the voice signature. The following diagram, Figure 4, illustrates the proposed use.

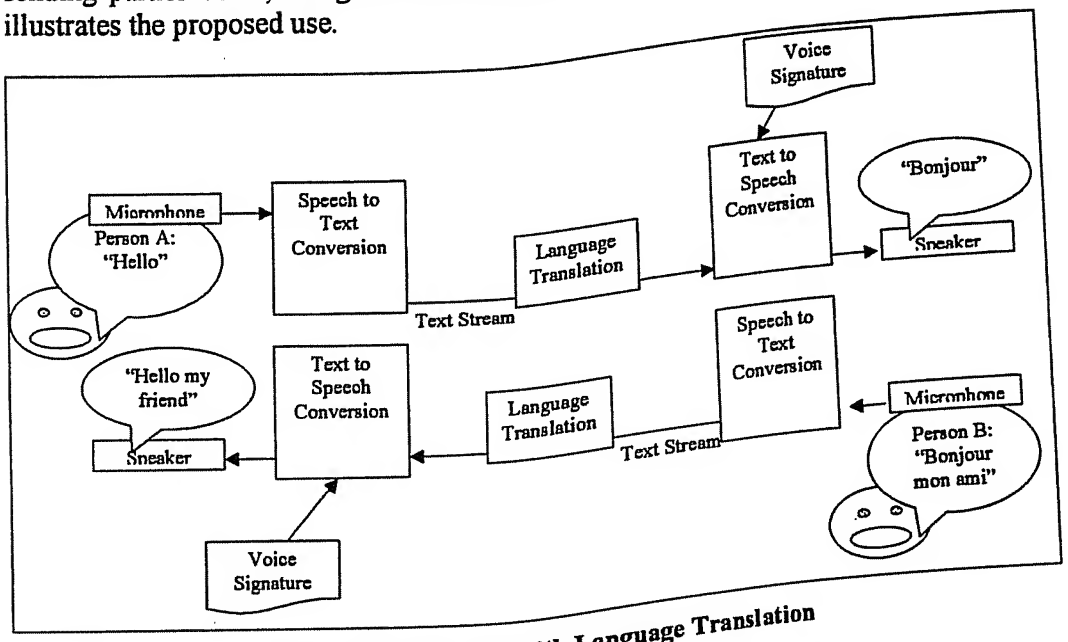


Figure 4. Voice to Text with Language Translation

1.5 *Voice Transcription with Language translation*

The final approach is to use voice transcription for real time chat with language translation, the following diagram illustrates the approach to be taken.

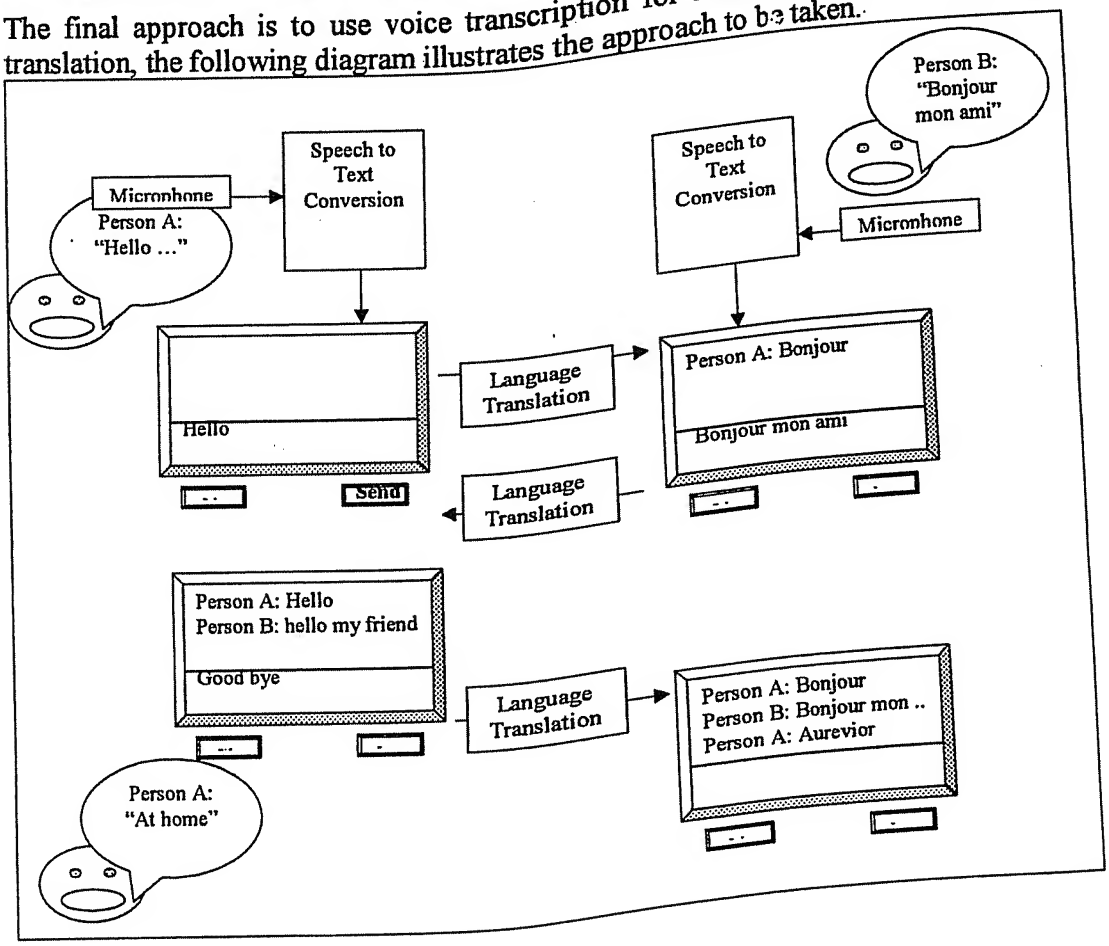


EXHIBIT "B"

8/L 15

File 15.7

Post Disclosure Information for BOC8-2002-0056

Prepared for and/or by an IBM Attorney - IBM Confidential

Created By Tom Creamer On 11/12/2002 01:45:06 PM MST
Last Modified By Tom Creamer On 11/12/2002 02:03:12 PM MST

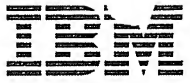
Required fields are marked with the asterisk (*) and must be filled in to complete the form .

The following people are responsible for these comments Tom Creamer/Fort Lauderdale/IBM, Peeyush Jaiswal/Fort Lauderdale/IBM

There are two additional claims that are unique to this disclosure:

1. The concept of the intermediary systems including a Voice Portal which allow the users to create "user preferences" (aka profiles). These user preferences allow for user defined grammars to be produced by each individula user. These user defined grammars are specific to a particular conversation. An example would be the change a chat phrase of "CU" into a voice translation of "see you". Another example would be to say "bye" which is translated to chat text as "later dude".

2. Using the Voice Portal, within a multiple chat session each user can control which party gets which part of the conversation. For example Mary wants to setup sessions between herself and her two friends, Jane and Linda. This session (conversation) is to be controlled such Jane never hears parts of the conversation with the key words "mall". This is because Mary has always had bad experiences with Jane when they go to the mall. If Linda asks about going mall, Mary wants that part of the conversation to become private.



8051 Congress Avenue
Boca Raton, FL 33487

EXHIBIT "C"

6169-367

December 26, 2002

Akerman, Senterfitt
222 Lakeview Avenue
4th Floor
West Palm Beach, FL 33401

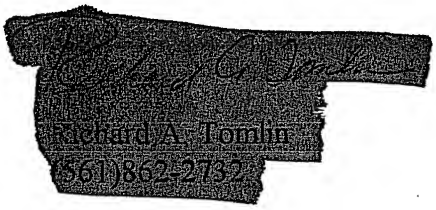
REF: Invention Disclosure: BOC8-2002-0056
Title: **Voice-to-Text Reduction for Real Time IM/Chat/SMS**
IBM Docket: BOC9-2002-0070

Dear Kevin,

Please prepare and file the above referenced case with the U.S. Patent and Trademark Office. A copy of the invention disclosure, patentability search results and inventor's comments are enclosed for your use in preparation of the application in accordance with IBM's format.

Thank you for your assistance in this matter.

Sincerely,



Enclosures

RECEIVED
DEC 31 2002
AKERMAN SENTERFITT & EIDSON, P.A.

EXHIBIT "D"

Akerman Senterfitt
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www.akerman.com

561 653 5000 *tel* 561 659 6313 *fax*

Direct Dial: 561-671-3658
E-Mail: kcuenot@akerman.com

January 7, 2003

[redacted]
IBM Corporation
[redacted]

RE: New U.S. Patent Application
VOICE-TO-TEXT REDUCTION FOR REAL TIME IM/CHAT/SMS
IBM Docket No. BOC9-2002-0070; Our Reference No.: 6169-367

Dear [redacted]

Thank you for your letter dated December 26, 2002. In accordance with IBM standard protocol, a patent application will be prepared and filed in the above-referenced matter on or before June 24, 2003. Notwithstanding, we will strive to prepare the patent application in an expedient manner.

As always, thank you for allowing us to be of assistance to you.

Very truly yours,

AKERMAN SENTERFITT

Kevin T. Cuenot

KTC/aa

cc: Gregory A. Nelson, Esquire